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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: CHEN-KUEI CHUNG, ET AL. )  
Application Serial No.: 10/656,755 ) Attorney Docket No.: IT0094-US  
Filed: September 6, 2003 )  
Title: THERMAL BUBBLE MEMBRANE )  
MICROFLUIDIC ACTUATOR )

**SUBMISSION OF REVOCATION OF POWER OF ATTORNEY**  
**AND GRANT OF POWER OF ATTORNEY**

Assistant Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicants hereby submit the attached Revocation of Power of Attorney and Grant of Power of Attorney in the above-identified application. Should there be any questions with respect to this submission a representative of the Patent Office is requested to contact the undersigned.


Respectfully submitted,

CHEN-KUEI CHUNG, ET AL.

Date: November 18, 2004

SHAW PITTMAN LLP  
1650 Tysons Boulevard  
McLean, VA 22102-4859  
703-770-7900

By:

  
Yitai Hu  
Registration No. 40,653

YH/LDE/lrhj

Customer No. 28970



**PATENT**  
**Customer No. 28970**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Patent Application and Patent Numbers:      See attached "Schedule A"

**REVOCATION OF POWER OF ATTORNEY**  
**AND GRANT OF NEW POWER OF ATTORNEY**

The undersigned, a representative authorized to sign on behalf of the assignee owning all of the interest in the listed and pending patent applications and issued patents on the attached sheet (Schedule A), hereby revokes all previous powers of attorney or authorization of agent granted in these patents before the date of execution hereof. The undersigned verifies that **INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE** is the assignee of the entire right, title, and interest in each of the pending patent applications and issued patents listed on the attached Schedule A and is identified as the assignee by assignments from the inventor(s) in the listed pending patent applications and issued patents as filed accordingly at the U.S. Patent and Trademark Office. The undersigned certifies that the evidentiary documents have been reviewed and to the best of the undersigned's knowledge and belief, title in each of the pending patent applications and issued patents listed on the attached Schedule A is in the assignee **INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE**.



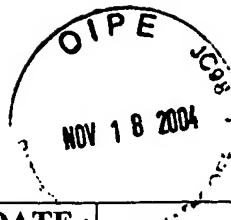
By the undersigned's signature, **INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE** hereby grants power of attorney for each of the pending patent applications and issued patents listed on the attached Schedule A to **SHAW PITTMAN LLP**, Michael D. Bednarek, Reg. No. 32,329; Lawrence J. Gotts, Reg. No. 31,163; Aslan Baghdadi, Reg. No. 34,542; Yitai Hu, Reg. No. 40,653; Elizabeth M. Roesel, Reg. No. 34,878; David C. Isaacson, Reg. No. 38,500; Steven P. Arnheim, Reg. No. 43, 475; Poh C. Chua, Reg. No. 44,615; Michael A. Oblon, Reg. No. 42,956; Lawrence D. Eisen, Reg. No. 41,009; Mark Koehn, Reg. No. 46,271; Michelle S. Marks, Reg. No. 41,971; Brett C. Martin, Reg. No. 52,000; Chad D. Wells, Reg. No. 50,875; Tara L. Hutchings, Reg. No. 46,559; John Kasha, Reg. No. 53,100; Ann P. McGeehan, Reg. No. 45,839; June E. Cohan, Reg. No. 43,741; and Joanne Kim, Reg. No. 51,193, both jointly and separately as its attorneys with full power of substitution and revocation, to transact all business in the Patent and Trademark Office connected with each of the pending patent applications and issued patents listed on the attached Schedule A.

Please send all future correspondence concerning the pending patent applications and issued patents listed on the attached Schedule A to SHAW PITTMAN LLP at the following address:

Shaw Pittman LLP  
1650 Tysons Blvd.  
McLean, Virginia 22102

Dated: Sept. 9, 2004

By: Benjamin Wang  
(name) Benjamin Wang  
(title) Deputy General Director  
Industrial Technology Research Institute



## SCHEDULE A

SERIAL NUMBER	FILING DATE	TITLE	PATENT NUMBER	ISSUE DATE
10/714,277	Nov. 14, 2003	Conductive Bumps with Non-Conductive Juxtaposed Sidewalls and Method for Fabricating	N/A	N/A
09/596,181	June 16, 2000	Method for Fabricating Electron Emitter Stacks for Field Emission Display Panel and Structures Formed	N/A	N/A
10/656,755	Sept. 6, 2003	Thermal Bubble Membrane Microfluidic Actuator	N/A	N/A
10/427,449	April 30, 2003	Flexible Electronic/Optical Interconnection Film Assembly and Method for Manufacturing	N/A	N/A
10,622,892	July 16, 2003	Method for Fabricating a Hollow Micro-Needle Array	N/A	N/A
10/863,700	June 7, 2004	Buried Array Capacitor and Microelectronic Structure Incorporating the Same	N/A	N/A
10/833,713	April 27, 2004	Image Sensor Packaging Structure and Method	N/A	N/A
08/670,505	June 27, 1996	Thin Film Transistor Liquid Crystal Display Device Having Multi-Layer Optical Film as Light Shield and Method of Manufacturing	N/A	N/A
10/057,026	Jan. 24, 2002	Integrated Inkjet Print Head with Rapid Ink Refill Mechanism and Off-Shooter Heater	N/A	N/A
10/654,314	Sept. 3, 2003	Microfluidic Component Providing Multi-Directional Fluid Movement	N/A	N/A
09/130,698	Aug. 7, 1998	Ball Grid Array Package Equipped with Cooling System	N/A	N/A
10/653,860	Sept. 3, 2003	Self-Assembled Nanometer Conductive Bumps and Method for Fabricating	N/A	N/A
09/273,691	March 22, 1999	Front-Side Repairable TFT-LCD and Method for Making	6,714,269	March 30, 2004
10/197,321	July 16, 2002	Micro Liquid Dispenser Incorporating a Liquid Pillar Injector and Method for Operating	6,663,214	December 16, 2003
10/345,861	Jan. 15, 2003	Three-Dimensional Stacked Heat Spreader Assembly for Electronic Package and Method for Assembling	6,700,783	March 2, 2004
10/689,262	Oct. 20, 2003	Integrated Probe Module for LCD Panel Light Inspection	N/A	N/A



## SCHEDULE A

SERIAL NUMBER	FILING DATE	TITLE	PATENT NUMBER	ISSUE DATE
10/713,804	Nov. 14, 2003	Embedded Microelectronic Capacitor Incorporating Ground Shielding Layers and Method for Fabrication	N/A	N/A
09/991,723	Nov. 23, 2001	Method for Bonding Inner Leads to Bond Pads Without Bumps and Structures Formed	6,656,772	December 2, 2003
10/079,748	Feb. 19, 2002	Method for Forming Cantilever Beam Probe Card and Probe Card Formed	6,651,325	November 25, 2003
10,345,861	Jan. 15, 2003	Three-Dimensional Stacked Heat Spreader Assembly for Electronic Package and Method for Assembling	6,700,783	March 2, 2004
09,273,691	March 22, 1999	Front-Side Repairable TFT-LCD and Method for Making	6,714,269	March 30, 2004
08/947,381	Oct. 8, 1997	Method for Forming Metal Silicide by Laser Irradiation	6,316,357	November 13, 2001
09/273,023	March 19, 1999	Planar Fluorescent Lamp with Flat Electrodes and Method for Fabricating	6,639,351	October 28, 2003

Customer No. 28970